TIKHONOV, V.N.; GRANKINA, M.Ya.; KOROLEVA, V.I.

Complexometric determination of magnesium and calcium in the products of the titanium industry. Zhur. anal. khim. 19 no. 1:59-62 '64. (MIRA 17:5)

1. Bereznikovskiy filial Vsesoyuznogo nauchno-issledovatel'skogo alyuminiyevo-magniyevogo instituta.

GRANKINA, Valentina Ivanovna

[Ways of reducing the cost of cocoons] Pilla tannarkhini kamaytirish iullari. Tashkent, Uzbekistan SSR davlat nashrieti, 1962. 46 p. [In Uzbek] (MIRA 17:10)

GRAN'KO, N.; SHANTYR', O.; SHNEY-KRASIKOVA, Ye.; BHUNEVSKAYA, M., red.; STEPANOVA, N., tekhn.red.

[Machine-embroidery manual] Posobie po mashinnoi vyshivke. Minsk, Gos.izd-vo BSSR, Red.nauchno-tekhn.lit-ry, 1960. 160 p. (MIRA 14:3)

(Embroidery (Machine))

GRAN'KOV, A.

Universal side mirror. Voen.znan. 33 no.9:26 S '57. (MIRA 10:10)

1. Rukovoditel' strelkovogo kruzhka pri pervichnoy organizatsii Dobrovol'nogo obshchestva sodeystviya armii, aviatsii i flotu shkoly No. 22 g. Dneprodzerzhinska.
(Shooting)

GOROKHOV, I., inzh. (Zhdanov); GRANKOV, L., inzh. (Zhdanov); RAKHMANOV, N., inzh.-mayor, izobretatel'; BASKAKOV, Yu. (Chernogorsk); PERFIL'YEV, N. (Moskva); GLINCHEVSKIY, V. (Penza); KORNEV, M., insh. (Kiyev); MIKHAREV, P., konstruktor (Orenburg*; D'YACHKOV, M. (Irkutsk)

How interesting! Izobr.i rats. no.1:19 '63. (MIRA 16:3)

1. Nachal'nik Penzenskogo byuro po delam ratsionalizatsii i izobretatel'stva (for Glinchevskiy).
(Technological innovations)

VOLKOV, I.; GRANKOV, L., inzh.

Use of synthetic materials and plastics in ship repair. Mor. flot 24 no.9:31-32 S '64. (MIRA 18:5)

1. Rukovoditel' gruppy Gosudarstvennogo proyektno-konstruktorskogo i nauchno-issledovatel'skogo instituta morskogo transporta Ministerstva morskogo flota SSSR (for Volkov).

GRANKOV, L.M.

Ultrasonic thickness meter. Mashonostroitel' no.10:16-17 O '65.
(MIRA 18:10)

L 17785-66 EWT(d)/EWP(c)/EWP(v)/T/EWP(k)/EWP(l)/ETC(m)-6

ACC NR: AP6004655 (N) SOURCE CODE: UR/0117/65/000/010/0016/0017

AUTHOR: Grankov, L. M.

ORG: none

TITLE: An ultrasonic thickness gauge

SOURCE: Mashinostroitel', no. 10, 1965, 16-17

TOPIC TAGS: ultrasonic equipment, electronic measuring instrument, electronic circuit, measuring instrument, pulse generator/ UZTI-62 measuring instrument

ABSTRACT: The UZTI-62 ultrasonic pulse thickness gauge is described. It was built at the Arctic and Antarctic Scientific Research Institute (Arkticheskiy i Antarkticheskiy nauchno-issledovatel'skiy institut), is designed for measuring the thickness of material, and can measure parts that can be approached from only one side. The instrument (see Fig. 1) measures according to the formula

$$t = \frac{2l}{c},$$

where t is the time interval between reflected pulses, l the thickness of the

Card 1/3 UDC: 62-41.002.56

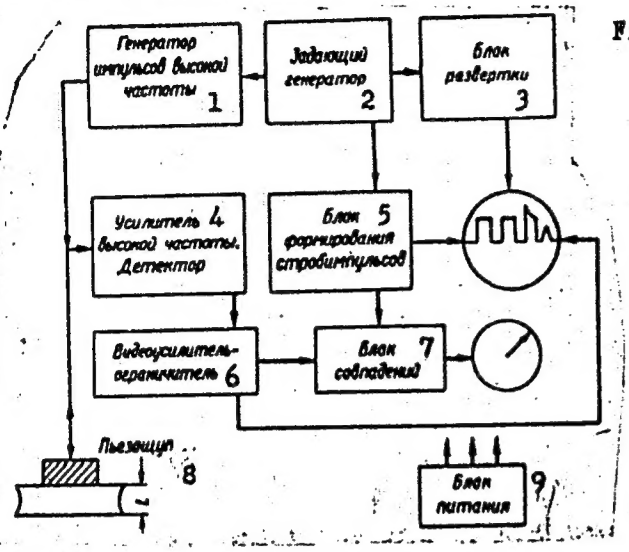

Fig. 1. 1 - high-frequency pulse generator; 2 - master oscillator; 3 - sweep unit; 4 - h-f amplifier and detector; 5 - gate-pulse shaper; 6 - video amplifier-limiter; 7 - coincidence unit; 8 - piezoprobe; 9 - power supply.

part, and c the ultrasound propagation velocity. The scale is calibrated for

L 17785-66

ACC NR: AP6004655

steel, and a conversion formula is given for other metals and ceramics. The measuremont limits for steel are 5--30 and 15--60 mm; the accuracy is ±0.5 mm for up to 10 mm and ±0.5% for over 10 mm; the power is not over 100 w; the dimensions are 230 x 260 x 410 mm; the weight is 10 kg. The dimensions of the stabilizer are 140 x 160 x 370 mm, and its weight is not over 10 kg. Orig. art. has: 1 photograph, 1 diagram, and 2 formulas.

SUB CODE: 14/ SUBM DATE: none

Card 3/3 vmb

GRANKOV, Vasiliy Pavlovich; SHENTSIS, Ye.M., redaktor; KAPRALOVA,A.A., tekhnicheskiy redaktor

[Selective observation] Vyborochnoe nabliudenie. Moskva, Gos. statisticheskoe izd-vo, 1955. 74 p. (MLRA 9:2)
(Sampling (Statistics))

GRANKOV, VASILIY PAVLOVICH

N/5
611.912
.G71

SBORNIK ZADACH PO STATISTIKE (COLLECTION OF STATISTICAL PROBLEMS, BY) V. P. GRANKOV (1 DR.) POD RED. A. I. GOZULOVA. MOSKVA, GOSSTATIZDAT, 1957. 255 P. TABLES.

GRANKOV, Vasiliy Pavlovich; SOLDATOV, V.A., red.; PYATAKOVA, N.D., tekhn. red.

[Selective observation] Vyborochnoe nabliudenie. Izd.2., perer. i dop. Moskva, Gosstatizdat, 1963. 152 p. (MIRA 17:2)

L 9200-66 EPF(n)-2/EWT(l)/EWT(m)/ETC/EWG(m)/EWP(t)/EWP(b)/EWA(m)-4

ACC NR: AR6000105 IJP(c) AT/JD SOURCE CODE: UR/0058/65/000/008/G007/G007

SOURCE: Ref. zh. Fizika, Abs. 8G57

AUTHORS: Kiselevskiy, L. I.; Snopko, V. N.; Gran'kova, D. A.; Shimanovich, V. D.

ORG: none

TITLE: Investigation of the level populations of copper and aluminum atoms subjected to autoionization

CITED SOURCE: Tr. Komis. po spektroskopii. AN SSSR. M., t. 2, vyp. 1, 1964, 150-158

TOPIC TAGS: copper, aluminum, ionization, electron recombination, line intensity, electron energy level, plasma structure

TRANSLATION: A study was made of the influence of the processes of autoionization and recombination on the intensity of the lines whose upper levels correspond to simultaneous excitation of two electrons. The level shifts of Cu and Al were studied. It is shown that the ratio of the intensities of the lines produced on going over from nearby levels with different autoionization coefficients is a function of the temperature, of the charged-particle concentration, and of the density. Under certain conditions such a ratio of the intensities can serve as a sensitive indicator of the physical parameters of a plasma. The obtained data are used to study the physical conditions in electric discharges and jets of a low-temperature plasma.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 000/ OTH REF: 000

Card 1/1

EWT(m)/EPR/EWP(b) ... AEDC ... AP4 44643 ... /0337/0339

AUTHORS: Kiselevskiy, L. I.; Gran'kova, D. A.

TITLE: Effect of the autoionization process on the population of the displaced levels of the aluminum atom

Optika i spektroskopiya, v. 17, no. ..., 1964, 337-339

...S: aluminum, level population, level shift, arc spectrum, ... autoionization, ...

ABSTRACT: The levels in question were $4s'{}^4P^0_{1/2}$, $4s'{}^4P^0_{3/2}$, and ... ${}^4P$ ..., and the tests were made in electric discharges in air at ... ranging from 100 mm Hg to 15 atm. DC and AC arcs of 4 am... well as a low-voltage spark, were used. The electrodes ... rods with a gap of ... mm. The spectra were photographed ... spectrograph ... were ...

L 8756-65
ACCESSION NR: AP4044843

0

by the ratio of the intensities of lines with close upper energy levels, having different autoionization probability. The investigations have shown that the intensity of the lines corresponding to a transition from the level $^4P^0_{5/2}$, which has low autoionization probability, changes with increasing pressure (taking into account the influence of the temperature) in the same manner as the intensity of lines from levels located below the ionization boundary, for which the autoionization probability is equal to zero. It is shown that the ratio of the intensity of lines subject to autoionization increases strongly with increasing pressure, and then reaches saturation and remains constant. The pressure at which saturation is reached is different for the case of an arc from the case of a spark. Saturation is reached with an AC arc at a pressure close to 1 atm, while in a low voltage spark at about 200 mm Hg. It can evidently be assumed that the saturation region corresponds to the thermal character of level population, and that the decrease in

Card 2/3

L 156-65
ACCESSION NR: AP4044843

the population of levels with large autoionization probability with decreasing pressure is connected with the decrease in the number of inelastic collisions between the atoms and the electrons and with recombination between the ions and electrons at the levels in question. This conclusion is confirmed by the fact that the deviation of autoionization levels from equilibrium population always increases with increasing electron concentration, all other conditions being equal. [illegible] authors thank M. A. [illegible] useful discussions of the work." Orig. art. has: [illegible] figures and 1 table.

ASSOCIATION: None

SUBMITTED: 10Nov63 ENCL: 00

SUB CODE: OP NR REF SOV: 001 OTHER: 003

Card 3/3

L 29677-66 EWT(1) IJP(c) AT
ACC NR: AP6012857 SOURCE CODE: UR/0368/66/004/004/0342/0345

AUTHOR: Gran'kova, D. A.; Kiselevskiy, L. I.

ORG: none

TITLE: Measurement of the electron density in an ac arc by determining the relative intensities of the transitions from the displaced levels

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 4, 1966, 342-345

TOPIC TAGS: ac discharge, discharge plasma, plasma arc, electron density

ABSTRACT: This is a continuation of earlier work by one of the authors (Kiselevskiy, with V. N. Snopko, Opt. i spektr. v. 17, 637, 1964) dealing with the character of the population of the displaced copper levels e^4D_j in a dc arc. The present investigation considers the change in the population of these levels in a nonstationary plasma of an ac arc at different pressures of the surrounding atmosphere. Another purpose of the investigation was to check on the applicability of a method (also by Kiselevskiy and Snopko, ZhPS v. 2, 207, 1965) of measuring electron densities by determining the relative intensities of the transitions from displaced levels with different auto-ionization probabilities. The investigations were made with arc pulses from electrodes of a copper and zince (10%) alloy, placed in a chamber in which the pressure could be varied from 1 atm to several

Card 1/2 UDC: 537.53

L 29677-66
ACC NR: AP6012857

mm Hg. The gap was 2 mm and the current 3 amp. Investigation of the arc pulses in an atmosphere of hydrogen has made it possible to compare the measured densities against the half-width of the Hβ line. The results obtained by two methods turned out to be quite close in the case of reduced pressure (300 mm Hg). Plots are presented of the electron density vs. the time, of the relative intensity of lines with different auto-ionization probabilities, the electron density, and the relative intensities of the lines of the ion and the neutral atom, as well as the discharge temperature vs. the time for both 760 and 300 mm Hg. A tendency to saturation is observed at 760 mm Hg, but not at 300 mm Hg. The degree of ionization is maximal at the initial stage of the pulse and decreases toward the end. This agrees with the data on the temperature. The variation of the degree of ionization and of the temperature during the pulse agree with the change of the transitions intensity ratio, and consequently with the variation of the electron density. It is thus concluded that the electron density and the intensity ratio are uniquely related at pressures below atmospheric, so that the method can be used to measure the electron density. Orig. art. has: 3 figures.

SUB CODE: 20/ SUBM DATE: 25Jan65/ ORIG REF: 004

Card 2/2

GRAN'KOVA, D.A.; KISELEVSKIY, L.I.

Arc type light source for spectrum analysis with permanent upper electrode. Zhur. prikl. spekt. 3 no. 2:168-170 Ag '65. (MIRA 18:12)

1. Submitted April 19, 1965.

L 27511-66 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/ETI IJP(c) JD/JG/GS/JH
ACC NR: AT6012374 SOURCE CODE: UR/0000/65/000/000/0089/0091

AUTHORS: Ageyev, N. V.; Glazunov, S. G.; Petrova, L. A.; Tarasenko, G. N.; Grankova, L. P.

ORG: none

TITLE: Investigation of alloys of the system Ti--Mo--Cr--Fe--Al

SOURCE: Soveshchaniye po metallokhimii, metallovedeniyu i primeneniyu titana i yego splavov, 6th. Novyye issledovaniya titanovykh splavov (New research on titanium alloys); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 89-91

TOPIC TAGS: titanium, iron, chromium, molybdenum, aluminum, titanium alloy, metal aging, annealing, hardness, x ray spectrum

ABSTRACT: The effect of annealing and aging on the hardness and x-ray spectra of alloys derived from the system Ti--Mo--Cr--Fe--Al was studied. The experimental procedure was described earlier by N. V. Ageyev, and L. A. Petrova (Dokl. AN SSSR, 1961, 138, No. 2, 359). Five different alloy compositions were studied, and the experimental results are presented graphically (see Fig. 1). Photographs of polished sections of the alloys annealed at different temperatures and aged for different periods of time are presented. The presence of satellite lines in the x-ray spectrograms are noted, but the authors refrain from giving an explanation for their presence. It is concluded that the alloys may prove interesting as low-alloy β-stabilizing high-strength titanium alloys.

Card 1/2

L 27511-66

ACC NR: AT6012374

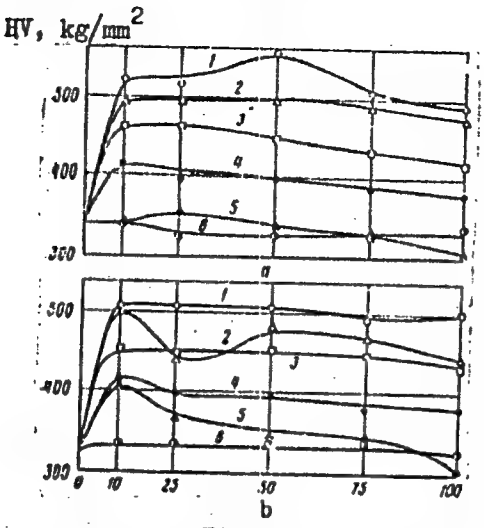

Fig. 1. Hardness of alloys as a function of the temperature and duration of aging. Aging temperature in C: 1 - 350; 2 - 400; 3 - 450; 4 - 500; 5 - 550; 6 - 600. (a) alloy 1T (2.9% Fe; 5.35 Cr; 1.47 Mo, 2.53 Al; 0.020 C; and 0.025 N); (b) alloy 5T (3.01% Fe; 7.7 Cr; 0.7 Mo; 1.2 Al; 0.016 C; and 0.021 N).

Orig. art. has: 1 table and 5 figures.

Card 2/2 GLG SUB CODE: 11/ SUBM DATE: 02Dec65/ ORIG REF: 004

L [illegible] EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EPF(n)-2/EWP(b) [illegible] IJP(c) JD/JG

ACCESSION NR: AP5013117 UR/0370/65/000/002/0141/0146
669.295

AUTHOR: Ageyev, N. V. (Moscow); Glazunov, S. G. (Moscow); Petrova, L. A. (Moscow); Talanenko, G. N. (Moscow); Grankova, L. P. (Moscow)

TITLE: Hot hardness in β alloys of the Ti-Mo-Cr-Fe-Al system

SOURCE: AN SSSR. Izvestiya. Metally, no. 2, 1965, 141-146

TOPIC TAGS: titanium alloy, molybdenum alloy, chromium alloy, aluminum alloy, iron alloy, metal mechanical property

ABSTRACT: Hot hardness measurements on six Ti-Mo-Cr-Fe-Al alloys gave a preliminary [illegible] the over-all high temperature strength properties. Measurements were [illegible] after holding for one minute and [illegible] minutes were also obtained [illegible] under a load [illegible] differences in positions of maximum hardness for the forged at 1000°C [illegible] reheated to 700°C specimens is said to be caused by the different amounts [illegible] segregations. Alloy compositions used had somewhat varying compositions. Non heat treated (forged) alloys maintained a higher hot hardness than heat treated al-

Card 1/2

L 55452-65

ACCESSION NR: AP5013117

lows, i.e. hardness at 600°C was about the same as room temperature. A sharp drop ... ed after 700°C. The 700°C reheat does not provide enough time for the at- ... of equilibrium conditions. A truer picture of β precipitation would be ... with longer annealing time under vacuum. Hardness versus time curves some- ... slight rises with increasing time due to precipitation of β. High tem- ... hardness in the 20-600°C range indicated effectual high temperature ... ening. Orig. art. has: 2 figures, 1 table.

ASSOCIATION: none

SUBMITTED: 24Feb64 ENCL: 00 SUB CODE: MM

NO REF SOV: 005 OTHER: 000

ACC NR: AP6036757 (A) SOURCE CODE: UR/0020/66/171/001/0077/0080

AUTHOR: Ageyev, N. V. (Corresponding member AN SSSR); Ivanova, V. S.; Petrova, L. A.; Kudryashov, V. G.; Grankova, L. P.

ORG: Institute of Metallurgy im. A. A. Baykov, AN SSSR (Institut metallurgii Akademii Nauk SSSR)

TITLE: Effect of structure on the resistance of β-titanium alloy crack propagation

SOURCE: AN SSSR. Doklady, v. 171, no. 1, 1966, 77-80

TOPIC TAGS: titanium, molybdenum alloy, chromium containing alloy, iron containing alloy, aluminum containing alloy, ~~alloy~~ heat treatment, ~~alloy structure, alloy mechanical property~~/IVT-1 alloy

ABSTRACT: Specimens of IVT-1 β-titanium alloy of optimum composition (7% Mo, 5.5% Cr, 3% Fe, and 3% Al) were solution heat treated at 800C (the β-region), water quenched, and aged at 450C for 50 hr, at 500C for 20 hr, at 525C for 15 hr, or at 500C for 15 hr. Microscopic examination showed that decomposition of the β-solid solution became more uniform as the aging temperature increased. After aging at 525C for 15 hr, the alloy structure consisted of the β-solid solution matrix uniformly reinforced with α-phase acicular fibers 2 μ or more long with a diameter about one order lower. Similar precipitated α-phase fibers within β-grains and along their boundaries were also observed in the alloy aged at 550C for 15 hr. In each

UDC: 669.295.5:620.17

Card 1/2

ACC NR: AP6036757

β-grain, the precipitated α-fibers appeared to be oriented predominantly along the slip planes. Aging conditions had no effect on the total volume of the precipitated fibers and affected only their form and distribution. The alloy aged at 525 or 550C had a tensile strength of 161 and 170 kg/mm^2, an elongation of 8.0 and 7.4%, and a reduction of area of 21.0 and 11.5%, respectively. The corresponding figures for unaged alloy were 150.7 kg/mm^2, 10.0% and 17.3%. Regardless of the aging conditions, IVT-1 alloy had a relatively low notch toughness of 2 kg·m/cm^2. However, the alloy aged at 525 and 550C had high resistance to crack propagation, indicating the alloy's low susceptibility to brittle failure under static loads. Therefore, IVT-1 β-titanium alloy reinforced with precipitated α-phase fibers can be recommended for structures with stress concentrators working under static laods. Orig. art. has: 2 figures and 1 table.

SUB CODE: 11/ SUBM DATE: 21Jul66/ ORIG REF: 001/ OTH REF: 004/
ATD PRESS: 5106

Card 2/2

L 37500-65 EWT(m)/EWP(w)/EPF(n)-2/EWA(d)/EPR/T/EWP(t)/EWP(b)/EWA(c) Ps-4/Pu-4

ACCESSION NR: AP5013155 UR/0129/65/000/005/0033/0035

Ageyev, N. V.; Glazunov, S. G.; Petrova, L. A.; Tarasenko, G. N.;

TITLE: Aging of β-alloys in the Ti-Mo-Cr-Fe-Al system

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 5, 1965, 33-35, and insert facing p. 24

TOPIC TAGS: titanium alloy, chromium alloy, molybdenum alloy, aluminum alloy, metal physical property, metal hardness, metal aging

ABSTRACT: An attempt was made to find an aging treatment which gives maximum hardness and strength. A series of β-alloys were selected for studying structure and hardness as a function of aging temperature from 300 to 1000°C. The Ti alloys investigated varied in composition: Mo (1.6-7.9%), Cr (3.4-7.9%), Fe (3.4-6.1%) and Al. After due processing and heat treatment, the alloys were examined [illegible] analysis, and Vickers hardnesses were measured. [illegible] metallographic and [illegible] showed β solid solutions. All of the hardness data are given in

Card 1/2

L 57509-65

ACCESSION NR: AP5013155

0

fig. 1 of the Enclosure. The alloys were aged, after prior annealing and treatment, for one hour at temperatures ranging from 300 to 1000°C. The hardness shows a [illegible] and 500-550°C depending on the alloy. From [illegible] the hardness grad- [illegible], and after 800°C an [illegible] is noted in some al- [illegible] alloys have [illegible] after aging at 300 and 800°C [illegible]

[illegible]

ASSOCIATION: none

ENCL 01 SUB CODE MM AS

[illegible]

L 14320-65 EPF(n)-2/EWT(m)/EWP(b)/EWP(t) Pu-4 ASD(m)-3/AFTC(p)/IJP(c)
JD/JG/MLK
ACCESSION NR: AT4048053 S/0000/64/000/000/0058/0073

AUTHOR: Ageyev, N. V.; Glazunov, S. G.; Petrova, L. A.; Tarasenko, G. N.; Frankova, L. P.

TITLE: Stability of Beta alloys of the Ti-Mo-Cr-Fe-Al system

SOURCE: Soveshchaniye po metallurgii, metallovedeniyu i primeneniyu titana i yego splavov. 5th, Moscow, 1963. Metallovedeniye [illegible]

TOPIC TAGS: alloy structure, Beta alloy, alloy phase transformation, titanium molybdenum alloy, chromium alloy, iron alloy, aluminum alloy

ABSTRACT: Previous studies have shown the critical concentration for the β-solid [illegible] of another element in titanium to be between 6 and 9%, and that the most [illegible] these combinations are formed by rhenium, nickel, molybdenum, and tungsten. Recently, there has been much interest in multicomponent alloys with the [illegible] and other reasons the authors decided to study the Ti-Mo-Fe-Cr-Al system in its β-phase and with an eye to choosing alloys for more detailed [illegible] mentation. The samples chosen for experimentation had molybdenum in concentrations of wt. 2-8%, chromium from 4-9%, iron from 3-8%, titanium from 81-83%,

Card 1/2

L 14320-65
ACCESSION NR: AT4048053

and aluminum constant at 3%. All samples but one were held at 200C for 100 hours, and that one was held at 200C for 9 hours. Two samples were also held at 300C [illegible] hours; all the remaining samples disintegrated. Four of them disintegrated with the precipitation of the W-phase, which lasted 100 hours longer; the [illegible] integrated with the precipitation of the χ-phase. Samples which had 2 [illegible] for the stability of the [illegible], on the corresponding [illegible] and for the [illegible] samples with [illegible], the amount of chromium in samples with 3% Mo decreased [illegible], while the amount of iron increased from 3.4% to 5%. In samples [illegible] each of iron and chromium, [illegible] than 3% Mo did not [illegible] ease the stability of the σ-alloy, and the delay in the process [illegible] integration is hardly worth the cost. Orig. art. has: 2 tables, 23 graphs, photomicrographs, and 4 roentgenograms.

ASSOCIATION: none

SUBMITTED: 15Jul64 ENCL: 00 SUB CODE: MM

NO REF SOV: 005 OTHER: 000

Card 2/2

L 44354-66 EWT(m)/EWP(t)/ETI/EWP(k) IJP(c) JD/HW/JG

ACC NR: AP6019834 (N) SOURCE CODE: UR/0370/66/000/001/0139/0148

AUTHOR: Ageyev, N. V. (Moscow); Glazunov, S. G. (Moscow); Petrova, L. A. (Moscow); Tarasenko, G. N. (Moscow); Grankova, L. P. (Moscow)

ORG: none

63
62
B

TITLE: Investigation of metastable β-alloys of the Ti-Mo-Fe-Al system

SOURCE: AN SSSR. Izvestiya. Metally, no. 1, 1966, 139-148

TOPIC TAGS: phase analysis, quaternary alloy, titanium base alloy, molybdenum, iron, aluminum, metal aging, mechanical property

ABSTRACT: This is a continuation of previous investigations (Ageyev, N. V., Rogachevskaya, Z. M. Zh. neorgan. khimii, 1959, IV, vyp. 10, 2323-2328; Ageyev, N. V., Grankova, L. P., Novik, P. K. Dokl. AN SSSR, 1962, 146, no. 2, 351-354) with the difference that it deals with Ti-Mo-Fe-Al alloys which quench to the β-solid solution, i.e. have an electron concentration of more than 4.20 el/at, but contain not more than 8.5% Fe and 8% Mo as well as 2.3 and 4% Al, and hence are of greater practical interest. Ingots of these alloys were melted by using a mixture of titanium sponge, Al-Mo master alloy, pure Al and armco iron. The ingots,

Card 1/2 UDC: 669.295

S/020/62/146/002/007/013
B101/B144

AUTHORS: Ageyev, N. V., Corresponding Member AS USSR, Grankova, L. P., Novik, P. K.

TITLE: Effect of aluminum on the stability of the β-phase in titanium - molybdenum - iron alloys

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 146, no. 2, 1962, 351-354

TEXT: Titanium alloys containing 6.7-13.5% Mo, 2.2-10% Fe, and 1-3% Al were studied radiographically and metallographically and their hardness was determined in order to explain differences in the published data. Results: (1) All alloys except those containing 6.7% Mo, 2.2% Fe, and 1-3% Al form single-phase solid β-solutions when hardened at 700°C. Alloys containing 6.7% Mo, 2.2% Fe, and 1-2% Al form the β-phase after hardening at 900°C, those containing 3% Al form it after hardening at 1000°C. (2) In alloys containing 6.7% Mo, 2.2% Fe, 1-3% Al, the β-phase decomposed within 15 min at 200°C. Between 200 and 300°C, the ω-phase was formed and remained stable for 100 hrs. The hardness increased with the ageing temperature. At 400°C, a $\beta+\omega \longrightarrow \beta+\alpha$ transition took place in

Card 1/3

these alloys and their hardness decreased slightly. The aluminum content of 1-3% did not affect the stability of the β-phase, but the hardness increased with the aluminum content. (3) In the other alloys, the β-phase decomposed immediately into the α-phase without forming the ω-phase. At 300°C, the β-phase of all alloys remained stable for 100 hrs. At 400°C, the β-phase of alloys containing 12% Mo, 10% Fe, and 1-3% Al did not decompose even after 144 hrs. With an aluminum content of 1%, the β-phase of alloys containing 9% Mo and 10% Fe decomposed within 121 hrs. With 2% Al it did so within 25 hrs, and with 3% Al within 16 hrs. In alloys containing 13.5% Mo, 6% Fe, and 1% Al, and in those containing 9% Mo, 10% Fe, and 1% Al, the β-phase is stable for 1 hr, at 500°C; in alloys containing 9% Mo, 10% Fe, and 2-3% Al or 7% Mo, 9% Fe, and 1-3% Al it is stable for 15 min only. (4) The β-phase of alloys hardened between 800 and 900°C decomposes in a similar way. (5) The β-phase of Ti - Mo - Fe - Al alloys is more stable than that of Ti - Mo - Fe alloys. There are 3 figures and 2 tables. The English-language references are: E. D. Kessler, M. Hansen, Trans. ASM, 46, 790 (1954); A. J. Griest, J. R. Doig, P. D. Frost, Trans. Met. Soc. AIME, 215, 4, 627 (1959).

Effect of aluminum on the ...

S/020/62/146/002/007/013
B101/B144

ASSOCIATION: Institut metallurgii im. A. A. Baykova (Institute of Metallurgy imeni A. A. Baykov)

SUBMITTED: May 12, 1962

Card 3/3

L 29192-66 EWT(m)/EWP(w)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/HW/JG

ACC NR: AP6016583 (A) SOURCE CODE: UR/0129/65/000/005/0012/0014

AUTHOR: Ageyev, N. V.; Glazunov, S. G.; Petrova, L. A.; Terasenko, G. N.; Grankova, L. P.; Shelest, A. Ye.

ORG: none

TITLE: High-temperature thermomechanical treatment of β-alloy of the Ti-Mo-Cr-Fe-Al system

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 5, 1966, 12-14

TOPIC TAGS: thermomechanical treatment, titanium alloy, titanium beta alloy, molybdenum containing alloy, iron containing alloy, aluminum containing alloy, alloy thermomechanical treatment, alloy mechanical property, alloy structure

ABSTRACT: Forged specimens of complex titanium-base alloy containing 7%Mo, 5.5%Cr, 3%Fe, and 3%Al were subjected to high-temperature thermomechanical treatment (HTMT), rolled at 850, 950, and 1050C with a 20, 40, and 60% reduction in one pass and 80% in two passes, immediately water quenched, and then aged at 450C for 15 and 25 hr, at 500C for 5 and 10 hr, or at 525C for 5 hr. HTMT increased alloy strength without affecting ductility. For example, prior to aging the tensile strength of alloy hot rolled at 950C with a reduction of 20, 40, 60, and 80% was 96.5, 105.0, 96.7, and 99.5 kg/mm^2, respectively, compared with 77.3 kg/mm^2 for alloy quenched from the same temperature without deformation. The corresponding figures for elongation were

Card 1/2

UDC: 295:621.771:621.735.61'74

L 29192-66

ACC NR: AP6016583 2

16.6, 18.4, 17.7, and 18%, respectively, compared with 16.9%. The increased strength of the alloy after HTMT is explained by strain hardening and fragmentation of the β-alloy grains. Aging produced a further significant increase of strength. The best combination of strength and ductility was obtained after HTMT with 60—80% reduction at 850C and aging at 500C for 10 hr or 525C for 5 hr, after which the alloy had a tensile strength of 164—177 kg/mm^2, an elongation of 4.5—9.0%, and a reduction of area of 8—15%. This effect of aging was found to result from the precipitation of the finely dispersed α-phase. Orig. art. has: 3 figures and 1 table. [MS]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 008/ ATD PRESS: 5004

Card 2/2 BLG

ACCESSION NR: AP4041145 S/0020/64/156/004/0789/0791

AUTHOR: Ageyev, N. V.; Glazunov, S. G.; Petrova, L. A.; Tarasenko, G. N.; Grankova, L. P.

TITLE: Dislocations in the titanium - molybdenum - iron - aluminum alloys

SOURCE: AN SSSR. Doklady*, v. 156, no. 4, 1964, 789-791, and insert facing p. 790

TOPIC TAGS: alloy dislocation, Ti Mo Fe Al, alloy, chilled alloy microstructure, etching, electromicroscopic study

ABSTRACT: By analyzing the structure of a quenched β - alloy of Ti - Mo - Fe - Al, the authors have found precipitations having the appearance of "sticks". Similar "sticks" were found earlier in quickly chilled Ti - 10% Mo alloys by T. H. Schofield et al. (Acta Metallurgica 7, no. 6, 403, 1959) who described them as regular arrays of etch holes caused by unstable groups of dislocations which are changed during cooling into a stabler net of subgrains. X-ray diffraction patterns obtained by the present authors show no presence of a new phase such as titanium hydride. It is pointed out that dislocations which are present in all metals, become apparent only under favorable conditions of etching. Electromicroscopic study of the "sticks" has actually demonstrated that they are formed by a series of little

Card 1/2

ACCESSION NR: AP4041145

holes. Orig. art. has: 4 figures.

ASSOCIATION: Institut metallurgii im A. A. Baykova (Institute of Metallurgy)

SUBMITTED: 05Feb64 ENCL: 00

SUB CODE: MM NO REF SOV: 005 OTHER: 002

Card2/2

SOV/81-59-9-32058

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 9, p 354 (USSR)

AUTHORS: Gurovich, Ya.I., Grankovskiy, I.G.

TITLE: Determination of the Sintering Temperature and the Temperature Range of the Sintering of Ceramic Masses From the Change in Electric Conductivity

PERIODICAL: V sb.: Issled. i ispol'zovaniye glin. L'vov, L'vovsk. un-t, 1958, pp 403 - 404 , 830 (English summary)

ABSTRACT: An electrical method has been described for determining the sintering temperature and the temperature range of the sintering of clays and ceramic masses, based on the measurement of electric conductivity. The latter increases in proportion to the temperature rise in connection with the formation of a liquid (glass-like) phase in the materials indicated. A schematic drawing of an experimental installation is presented, by means of which the intensity of the current is measured which passes through a sample of standard dimensions (a cylinder 100 mm long and

Card 1/2

Determination of the Sintering Temperature and the Temperature Range of the Sintering of Ceramic Masses From the Change in Electric Conductivity

11.2 mm in diameter). An increase in the current intensity at constant tension on the electrodes characterizes the increase in the electric conductivity of the sample. The method recommended for determining the sintering temperature and the temperature range of the sintering of ceramic masses needs no more than 1.5 hours.

G. Maslennikova

5(1) SOV/32-25-4-43/71

AUTHORS: Govorov, A. A., Grankovskiy, I. G.

TITLE: Plant for the Differential Thermal Analysis (Ustanovka dlya differentsial'nogo termicheskogo analiza)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 4, pp 481-482 (USSR)

ABSTRACT: A device for thermal analyses was developed which shows some advantages as compared with the devices usually in use. It has a nickel block of a special type of construction (Fig 1). The block consists of three disks placed one above the other. The bottom disk has 7 openings in which platinum/platinum-rhodium thermoelements are introduced. The middle disk also has 7 openings which form "nests" around the thermoelements in which the substance to be tested or an inert substance is placed. The top disk is used as a lid and has 1 mm borings through which the gases liberated from the samples can escape. The block also permits analyses with only 0.2-0.3 g of substance; thermograms of two different substances can be plotted at the same time. The nickel block is placed into an electric furnace, and a uniform heating is attained by means of an autotransformer with the device KEP (Fig 2). A reflecting galvanometer M-25 is used for

Card 1/2

recording the differential curve. The calibration of the temperature sections is done by means of known aiming points which correspond to the endothermal effects in the conversion of pure salts (NH_4NO_3 32°, 85°, 125°, KNO_3 128° and quartz 573°). There are 2 figures.

ASSOCIATION: Nauchno-issledovatel'skiy institut stroitel'nykh materialov i izdeliy Akademii stroitel'stva i arkhitektury USSR (Scientific Research Institute of Building Materials and Articles of the Academy of Building and Architecture UkrSSR)

GOVOROV, A.A.; GRANKOVSKIY, I.G.

Unit for complete thermoanalysis. Zav.lab. 27 no.1:115-116 '61.
(MIRA 14:3)

1. Nauchno-issledovatel'skiy institut stroitel'nykh materialov i izdeliy Akademii stroitel'stva i arkhitektury USSR.
(Thermal analysis)

GRANKOVSKIY, I.G.; CHERNOGORENKO, V.B.

Apparatus for determining the viscoplastic characteristics of cement pastes. Zav.lab. 28 no.3:374-376 '62. (MIRA 15:4)

1. Nauchno-issledovatel'skiy institut stroitel'nykh materialov i izdeliy Akademii stroitel'stva i arkhitektury USSR.
(Building materials--Testing) (Rheology)

GRANKOVSKIY, I.G.; CHERNOGORENKO, V.B.

Characteristics of cement pastes and of concentrated suspension models. Koll. zhur. 25 no.4:402-406 Jl-Ag '63. (MIRA 17:2)

1. Nauchno-issledovatel'skiy institut stroitel'nykh materialov i izdeliy, Kiyev.

CHERNOGORENKO, V.B.; GRANKOVSKIY, I.G.

Structure-mechanical and other properties of cement paste during its transition from the viscoplastic to the resilient-brittle state. Koll.zhur. 25 no.5:600-605 S-O '63. (MIRA 16:10)

1. Nauchno-issledovatel'skiy institut stroitel'nykh materialov, Kiyev.

GRANKOVSKIY, I.G.

Effect of ultrasonic waves on the structural and mechanical properties of disperse water-cement systems. Koll. zhur. 26 no.5:578-582 S-O '64.

(MIRA 17:10)

1. Nauchno-issledovatel'skiy institut stroitel'nykh materialov i izdeliy, Kiyev.

CHERNOGORENKO, V.B., kand. khim. nauk; GRANKOVSKIY, I.G., inzh.

Relation of electric conductivity of cement and puddle to current frequency. Stroi. mat. 10 no.7:18 Jl '64 (MIRA 18:1)

OMEL'YANENKO, B.; GRANOVSKIY, M.

Study rooms and visual aids for the schools for chemical workers. Prof.-tekh. obr. 21 no.9:17 S '64.

(MIRA 17:11)

GRANKOVSKIY, Vladimir Fomich; KIKLEVICH, Nikolay Antonovich; SIMONCHAK, Vasiliy Trofimovich; FOMENKO, Dmitriy Ivanovich; SAPILOV, A.V., otv. red.; BELOV, V.S., red. izd-va; SABITOV, A., tekhn. red.; OVSEYENKO, V.G., tekhn. red.

[Electric equipment with 660 volt rating for mines]Rudnichnoe elektrooborudovanie na napriazhenie 660 v. [By]V.F.Grankovskiy i dr. Moskva, Gosgortekhizdat, 1962. 119 p. (MIRA 15:8)
(Mining machinery—Electric driving)

GRANOVSKIY, V.G.

Effect of elastic stresses on the parameters of solid solutions with ferroelectric properties. Izv. vys. ucheb. zav.; fiz. no.5: 131-134 '64. (MIRA 17:11)

1. Rostovskiy gosudarstvennyy universitet.

KOCHO, V.S., prof., doktor tekhn. nauk; GRANKOVSKIY, V.I., inzh.; MOLCHANOV, Yu.D., inzh.; PLOSHCHENKO, Ye.A., inzh.

Heating open-hearth furnaces of 500 ton capacity with hot coke gas. Biul. TSNIICHM no.1:11-15 '58. (MIRA 11:5)
(Open hearth furnaces)

GrankovskiY, V.I.

AUTHORS: Kocho, V.S., Doctor of Technical Sciences, Professor, Grankovskiy, V.I., Molchanov, Yu.D. and Ploshchenko, Ye.A. 130-58-2-6/21

TITLE: Open-hearth Furnace Operation on High-calorific Value Low-pressure Gas (Rabota martenovskikh pechey na vysokokaloriynom goryachem gaze nizkogo davleniya)

PERIODICAL: Metallurg, 1958, Nr 2, pp 9 - 12 (USSR).

ABSTRACT: Blast-furnace gas is normally added to coke-oven gas for firing open-hearth furnaces to improve flame quality. The low calorific value of blast-furnace gas, however, lowers the theoretical flame temperature and an investigation has been carried out by the imeni Voroshilova (imeni Voroshilov) metallurgical works together with the Kiyevskiy politekhnicheskiy institut (Kiev Polytechnical Institute) of furnace firing without the addition. The authors mention this work in which pure coke-oven gas was used with the addition of turbine air into the side of the gas port and describe the adoption of practice with reduced (halved) quantities of blast-furnace gas which followed the completion of the first part of the work. On 250 and 500-ton furnaces, the blast-furnace gas consumptions were 3 000 and 4 500 m³/hour, respectively, the coke-oven gas consumptions remaining unchanged and the specific fuel consumption being equivalent to the decrease in blast-furnace

Cardl/3

Open-hearth Furnace Operation on High-calorific Value Low-pressure Gas

gas consumption. By increasing the port cross-sections, an equally high temperature (about 1 350 °C) was obtained for gas and air checkers. The slag pockets filled less rapidly, a higher furnace temperature and increased heat flows were obtained with the new practice: measurements with VNIIT-designed probes on a 500-ton furnace are shown graphically. Three experimental heats were carried out on a 500-ton furnace without blast-furnace gas and the averages of the main operating results for this and ordinary operation are tabulated (Table 1): the authors discuss these briefly and point out that there seems to be an optimal gas pre-heat temperature. They consider the functioning of the gas checkers with pure coke-oven gas. A failure of the lining of the gas ports on a 500-ton furnace led to the combustion products losing enough heat to prevent over-heating of the gas checkers and the furnace was worked on coke-oven gas continuously for 1 1/2 months. The operating results show (Table 2) mean decreases of 0.7 hours and 21.8 kg/ton for tap-to-tap time and consumption of standard fuel, respectively. The authors recommend the coke-oven gas firing of furnaces without blast-furnace gas, the cross-sectional area of the gas ports being reduced to reduce the flow of combustion products

130-58-2-6/21

Open-hearth Furnace Operation on High-calorific Value Low-pressure Gas

by 20 - 30% and high-pressure air being supplied to the sides of the gas ports; blast-furnace gas should still be supplied during reversals.
There are 1 figure and 2 tables

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Card 3/3

1. Open hearth furnaces-Operation 2. Coal gas-Applications

KOCHO, V.S., doktor tekhn.nauk, prof.; GRANKOVSKIY, V.I., inzh.;
PLOSHCHENKO, Ye.A., inzh.

Thermal balance of 500 and 250 t. open-hearth gas furnaces.
Izv. vys. ucheb. zav.; chern. met. no.3:52-66 Mr '58. (MIRA 11:5)

1.Kiyevskiy politekhnicheskiy institut i Voroshilovskiy
metallurgicheskiy zavod.
(Open-hearth furnaces)
(Heat)

KOCHO, V.S., doktor tekhn.nauk, prof.; GRANKOVSKIY, V.I., inzh.

Investigating heat absorption and thermal efficiency of 500 and 250-ton open-hearth furnaces. Izv. vys. ucheb. zav.; chern.met. no.5:65-75 My '58. (MIRA 11:7)

1.Kiyevskiy politekhnicheskiy institut.
(Open-hearth furnaces) (Heat--Radiation and absorption)

KOCHO, V.S., prof., doktor tekhn. nauk; GRANKOVSKIY, V.I., inzh.

Statistical analysis of the heat output of 500-ton and 250-ton capacity open-hearth furnaces. Biul. TSNIICHM no. 10:8-15 '58.
(MIRA 11:7)
(Open-hearth furnaces)

KOCHO, V.S., prof., doktor tekhn.nauk; GRANKOVSKIY, V.I., inzh.

Investigating temperature conditions in 500-ton open hearth furnaces. Izv.vys.ucheb.zav.; chern.met. no.10:75-83 O '58. (MIRA 11:12)

1. Kiyevskiy politekhnicheskiy institut.
(Open-hearth furnaces) (Pyrometry)

KOCHO, V.S., doktor tekhn.nauk, prof.; GRANKOVSKIY, V.I., inzh.; PLOSHCHENKO, Ye.A., inzh.

Investigating thermal processes in open hearth furnaces operating with compressed air fed into the bulkheads. Izv. vys. ucheb. zav.; chern.metal no.1:112-116 Ja '58. (MIRA 11:5)

1.Kiyevskiy politekhnicheskiy institut i Voroshilovskiy metallurgicheskiy zavod.

(Open-hearth furnaces)

GRANKOVSKIY, V. I.: Master Tech Sci (diss) -- "Investigation of the thermal operation of 250- and 500-ton open-hearth furnaces". Kiev, 1959. 20 pp (Min Higher Educ USSR, Kiev Order of Lenin Polytech Inst), 100 copies (KL, No 13, 1959, 104)

KOCHO, V.S., doktor tekhn.nauk, prof.; GRANKOVSKIY, V.I., inzh.

Changes of pressure in open-hearth furnace vertical gas flues operating with compressed air. Izv.vys.ucheb.zav.; chern.met. 2 no.6:93-97 Je '59. (MIRA 13:1)

1. Kiyevskiy politekhnicheskiy institut. Rekomendovano kafedroy avtomatizatsii metallurgicheskikh protsessov i pechey Kiyevskogo politekhnicheskogo instituta.
(Open-hearth furnaces)

KOCHO, V.S., doktor tekhn.nauk prof.; GRANKOVSKIY, V.I., kand.tekhn.nauk

Statistical analysis of thermal processes in a 200-ton open-hearth furnace. Izv.vys.ucheb.zav.; chern.met. 2 no.7:105-110 Jl '59. (MIRA 13:2)

1. Kiyevskiy politekhnicheskiy institut.
(Open-hearth furnaces) (Pyrometry)

SOV/133-59-9-8/31

AUTHORS: Kocho, V.S., Doctor of Technical Sciences, Sabiyev, M.P., Grankovskiy, V.I., Ploshchenko, Ye.A. and Molchanov, Yu.D., engineers

TITLE: An Investigation of the Operation of a 250 Ton Open Hearth Furnace Fired with Coke Oven Gas

PERIODICAL: Stal', 1959, Nr 9, pp 796-802 (USSR)

ABSTRACT: Possibilities of firing open hearth furnaces with a low pressure hot gas of a high calorific value without carburization are discussed. Literature data are quoted indicating that autocarburization of gas can be obtained by preheating the gas to a temperature at which decomposition of methane, with the partial formation of higher hydrocarbons and carbon particles, takes place. Experience in firing a 250 ton open hearth furnace with preheated coke oven gas of the usual pressure instead of a mixture of coke oven and blast furnace gas is described. For this purpose the cross-sectional area of the outlets from dog houses was reduced from 0.45 to 0.22 m^2 and the gas port was lowered. Compressed air in an amount of 3000 to 3500 m^3/hr was introduced through the back faces of the dog houses. The above measures permitted

Card 1/3

An Investigation of the Operation of a 250 Ton Open Hearth Furnace Fired with Coke Oven Gas

increasing the velocity of the gas-air mixture from the dog house to 100 to 120 m/sec. The pressure in the gas vertical flue increased to the atmospheric pressure and at maximum thermal loads to 10 mm H_2O. The temperature of the upper checkers of gas regenerators was maintained at 1200 to 1250°C. The consumption of oil remained the same as on firing with mixed gas. During the melting period, the flame was covering the bath satisfactorily but during the refining period at low thermal loads the length of the flame was insufficient. In this case, an improvement can be obtained by decreasing the coefficient of excess air to 0.9 to 1.0. Changes in the operating indices of the furnace on transfer to firing with hot coke oven gas are given in tables 1 and 2. The preliminary results obtained indicated that, in respect of productivity and fuel consumption, the furnace operation was satisfactory. Further investigation of the problem of heating open hearth furnaces with a hot low pressure gas of a high calorific value and, in

An Investigation of the Operation of a 250 Ton Open Hearth Furnace Fired with Coke Oven Gas

particular, the development of an optimum furnace design is recommended. There are 6 figures, 2 tables and 10 references, 8 of which are Soviet and 2 English.

Card 3/3

GRANKOVSKIY, V.I.

PHASE I BOOK EXPLOITATION SOV/3487

Kocho, Valentin Stepanovich, and Vadim Ivanovich Grankovskiy

Teplovaya rabota martenovskikh pechey (Thermal Performance of Open-Hearth Furnaces) Moscow, Metallurgizdat, 1960. 187 p. Errata slip inserted. 2,700 copies printed.

Ed.: V.N. Kornfel'd; Ed. of Publishing House: V.N. Sidorov; Tech. Ed.: L.V. Dobuzhinskaya.

PURPOSE: This book is intended for scientific and technical personnel at metallurgical and machine-building plants and at research and design institutes. It may also be useful to students at higher educational institutions specializing in steel metallurgy, automation of industrial metallurgical furnaces, and industrial power engineering.

COVERAGE: The book presents the results of experimental investigations of the thermal performance of large-capacity open-hearth furnaces. Heat exchange in the combustion space of furnaces and the effect of thermal conditions on heat transfer and on thermal efficiency are discussed with a view to

Card 1/5

determining optimum parameters of the thermal regime. Distinguishing features are given and a comparison made of the thermal performance of 250- and 500-t furnaces fired with fuel blended from gases of various heating values and with hot coke gas. Considerable space is devoted to an investigation of the effect of the delivery of compressed air to the gas port ends on heat exchange in the combustion space. The following personalities (members of the Department of Steel Metallurgy and Industrial Furnaces, Kiyev Polytechnic Institute, and workers at the Alchevsk Metallurgical Plant) are mentioned as having taken part in the investigations upon which the book is based: Ye. A. Ploshchenko, Yu.D. Molchanov, V.G. Antosyak, F. Prokaba, P. Ya. Vavulin, B.V. Tekhno, B.I. Kosach, P.L. Guba, and V.Ya. Lashchev. Acknowledgments are made to A.V. Kavaderov, Doctor of Technical Sciences, and V.N. Kornfel'd, Candidate of Technical Sciences, for assistance rendered in preparing the manuscript. There are 77 references: 66 Soviet, 7 English, and 4 German.

TABLE OF CONTENTS:

AVAILABLE: Library of Congress

KOCHO, V.S.; GRANKOVSKIY, V.I.

Temperature conditions of 500-ton open-hearth furnaces operating with blown-in turbine air and with steam injection in the air. Biul. TSIICHM no.10:34-36 '60. (MIRA 15:4)

1. Kiyevskiy politekhnicheskiy institut.
(Open-hearth furnaces)

GRANKOVSKIY, V. I.

85

PHASE I BOOK EXPLOITATION SOV/5556

Moscow. Institut stali.

Novoye v teorii i praktike proizvodstva martenovskoy stali (New [Developments] in the Theory and Practice of Open-Hearth Steelmaking) Moscow, Metallurgizdat, 1961. 439 p. (Series: Trudy Mezhvuzovskogo nauchnogo soveshchaniya) 2,150 copies printed.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR. Moskovskiy institut stali imeni I. V. Stalina.

Eds.: M. A. Glinkov, Professor, Doctor of Technical Sciences, V. V. Kondakov, Professor, Doctor of Technical Sciences, V. A. Kudrin, Docent, Candidate of Technical Sciences, G. N. Oyks, Professor, Doctor of Technical Sciences, and V. I. Yavoyskiy, Professor, Doctor of Technical Sciences; Ed.: Ye. A. Borko; Ed. of Publishing House: N. D. Gromov; Tech. Ed.: A. I. Karasev.

PURPOSE: This collection of articles is intended for members of scientific institutions, faculty members of schools of higher education, engineers concerned with metallurgical processes and physical chemistry, and students specializing in these fields.

Card 1/14

83

New [Developments] in the Theory (Cont.) SOV/5556

COVERAGE: The collection contains papers reviewing the development of open-hearth steelmaking theory and practice. The papers, written by staff members of schools of higher education, scientific research institutes, and main laboratories of metallurgical plants, were presented and discussed at the Scientific Conference of Schools of Higher Education. The following topics are considered: the kinetics and mechanism of carbon oxidation; the process of slag formation in open-hearth furnaces using in the charge either ore-lime briquets or composite flux (the product of calcining the mixture of lime with bauxite); the behavior of hydrogen in the open-hearth bath; metal desulfurization processes; the control of the open-hearth thermal melting regime and its automation; heat-engineering problems in large-capacity furnaces; aerodynamic properties of fuel gases and their flow in the furnace combustion chamber; and the improvement of high-alloy steel quality through the utilization of vacuum and natural gases. The following persons took part in the discussion of the papers at the Conference: S.I. Filippov, V.A. Kudrin, M.A. Glinkov, R.P. Nam, V.I. Yavoyskiy, O.N. Oyks and Ye. V. Cholishchev (Moscow Steel Institute); Ye. A. Kazachkov and A. S. Kharitonov (Zhdanov Metallurgical Institute); N.S. Mikhaylets (Institute of Chemical Metallurgy of the Siberian Branch of the Academy of Sciences USSR); A.I. Stroganov and D. Ya. Povolotskiy (Chelyabinsk Polytechnic Institute); P.V. Umrikhin (Ural Polytechnic Institute); I.I. Fomin (the Moscow "Serp i molot" Metallurgical Plant); V.A. Puklev (Central Asian Polytechnic Institute)

Card 2/14

and M.I. Beylinov (Night School of the Dneprodzerzhinsk Metallurgical Institute). References follow some of the articles. There are 268 references, mostly Soviet.

TABLE OF CONTENTS:

KOCHO, V.S.; GRANKOVSKIY, V.I.; PERELOMA, V.A.; NAYDEK, V.L.

Dynamic characteristics of open-hearth furnaces according to pressure in the melting zone. Izv.vys.ucheb.zav.; chern.met. 4 no.6:168-172 '61. (MIRA 14:6)

1. Kiyevskiy politekhnicheskiy institut.
(Open-hearth furnaces)

KOCHO, V.S.; GRANKOVSKIY, V.I.; ANTOSYAK, V.G.; NAYDEK, V.L.

Investigating the feasibility of ensuring the optimum luminosity of a gas flame. Izv. vys. ucheb. zav.; chern. met. 4 no.8:143-148 '61. (MIRA 14:9)

1. Kiyevskiy politekhnicheskiy institut.
(Open-hearth furnaces--Combustion)

KOCHO, V.S.; GRANKOVSKIY, V.I.; ANTOSYAK, V.G.; PROSHCHENKO, Ye.A.

Evaluating the degree of blackness of a flame furnace torch.
Zav.lab. 27 no.5:574-578 '61. (MIRA 14:5)
(Metallurgical furnaces) (Flame)

KOCHO, V.S., doktor tekhn. nauk; GRANKOVSKIY, V.I., kand. tekhn. nauk; PERELOMA, V.A., inzh.; DRYAPIK, Ye.B., inzh.; STREL'CHENKO, Yu.G., inzh.

Selecting an impulse to evaluate the pressure in the hearth of an open-hearth furnace. Met. i gornorud. prom. no.1:63-66 Ja-F '62. (MIRA 16:6)

1. Kiyevskiy politekhnicheskiy institut (for Kocho, Grankovskiy, Pereloma). 2. Kommunarskiy metallurgicheskiy zavod (for Dryapik, Strel'chenko).

(Open-hearth furnaces) (Gas flow)

KOCHO, V.S., doktor tekhn.nauk; GRANKOVSKIY, V.I., kand.tekhn.nauk

Method of continuous determination of the rate of carbon dioxide evolution from open-hearth furnace baths. Met. i gornorud. prom. no.4:69-70 Jl-Ag '62. (MIRA 15:9)
(Open hearth process)
(Carbon dioxide--Measurement)

KOCHO, V. S.; GRANKOVSKIY, V. I.; ANTOSYAK, V. G.

Impulse for regulating the luminosity of the gas furnace flame. Izv. vys. ucheb. zav.; chern. met. 5 no.12:182-187 '62. (MIRA 16:1)

1. Kiyevskiy politekhnicheskiy institut.

(Open-hearth furnaces) (Gas burners)

KOCHO, V.S., doktor tekhn.nauk; GRANKOVSKIY, V.I., kand.tekhn.nauk; NAYDEK, V.L., inzh.; MOLCHANOV, Yu.D., inzh.; PIORO, Ch.K., inzh.

Comparative analysis of thermal processes in 500-ton open-hearth furnaces in two metallurgical plants. Stal' 22 no.1:23-27 Ja '62. (MIRA 14:12)

(Open-hearth furnaces)
(Heat—Transmission)

KOCHO, V.S., doktor tekhn.nauk; GRANKOVSKIY, V.I., kand.tekhn.nauk; NAYDEK, V.L.

Improving the temperature control system of open-hearth furnaces. Avtom. i prib. no.1:21-24 Ja-Mr '63. (MIRA 16:3)

1. Kiyevskiy politekhnicheskiy institut.
(Open-hearth furnaces) (Thermostat)

KOCHO, V.S., doktor tekhn. nauk; GRANKOVSKIY, V.I., kand. tekhn. nauk; PERELOMA, V.I., inzh.; DRYAPIK, Ye.P., inzh.; TEPLITSKIY, B.M., inzh.; GLOBA, N.I., inzh.; STREL'CHENKO, Yu.G., inzh.

Heating open-hearth furnaces with hot natural gas. Met. i gornorud. prom. no.5:65-66 S-O '63. (MIRA 16:11)

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Investigating heat transfer in very high capacity open-hearth furnaces. Stal' 25 no.12:1081-1085 D '65. (MIRA 18:12)

1. Kiyevskiy politekhnicheskiy institut i Zhdanovskiy metallurgicheskiy zavod im. Il'icha.

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Organization of nonstop train crossings on single-track lines.
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(Railroads--Crossings)

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[Concise manual on homeotherapy] Kratkoe rukovodstvo po gomeoterapii. Leningrad, Medgiz, 1956. 239 p. (MIRA 13:8)
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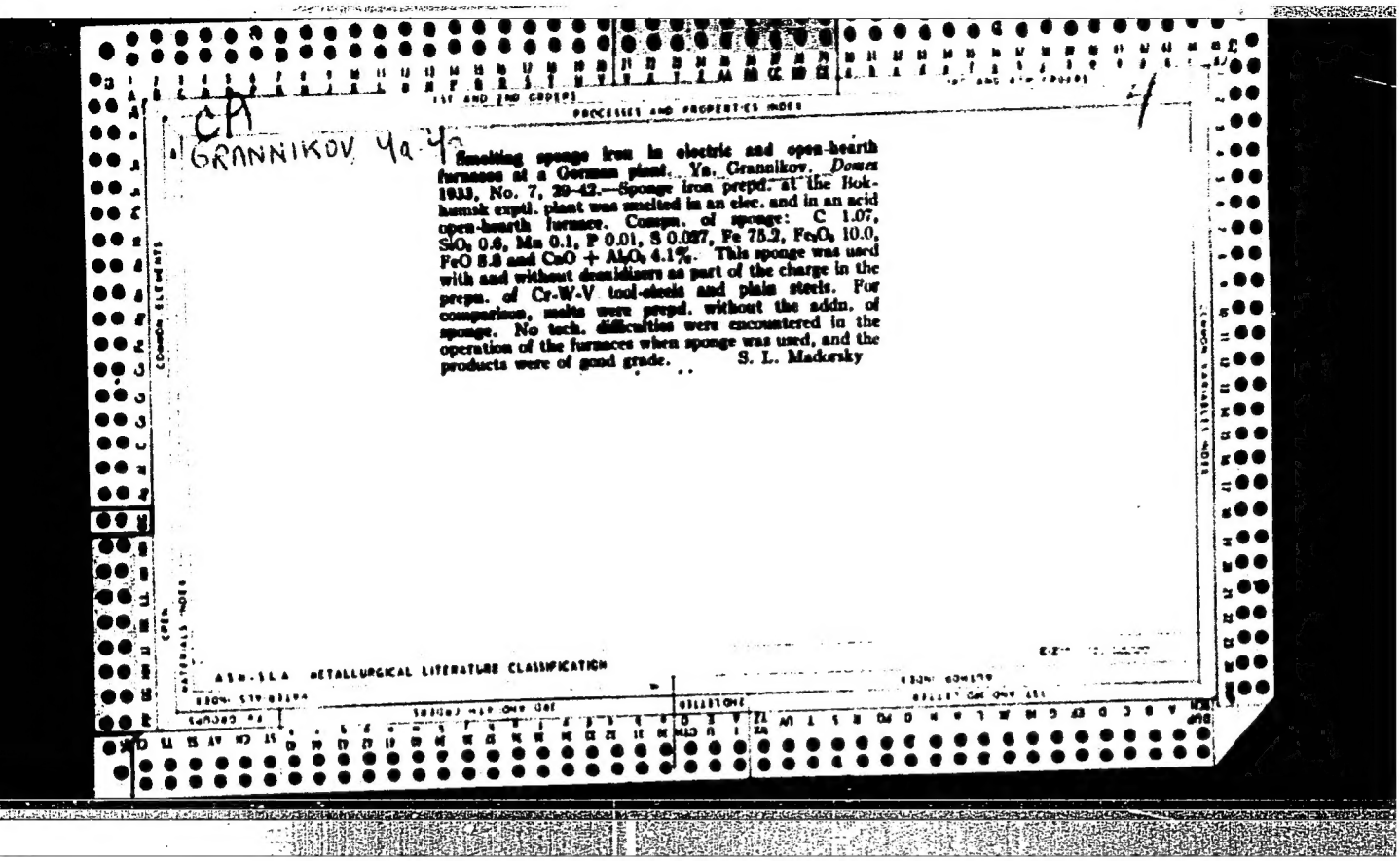

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GRANNIKOV 4a-42

Smelting sponge iron in electric and open-hearth furnaces at a German plant. Ya. Grannikov. *Domez* 1933, No. 7, 39-42.—Sponge iron prepd. at the Bokhumsk expti. plant was smelted in an elec. and in an acid open-hearth furnace. Compn. of sponge: C 1.07, SiO_2 0.6, Mn 0.1, P 0.01, S 0.027, Fe 75.2, Fe_2O_3 10.0, FeO 8.8 and CaO + Al_2O_3 4.1%. This sponge was used with and without desiliciuers as part of the charge in the prepn. of Cr-W-V tool-steels and plain steels. For comparison, melts were prepd. without the addn. of sponge. No tech. difficulties were encountered in the operation of the furnaces when sponge was used, and the products were of good grade. S. L. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

GRANNIKOV, Ya.Ya.; AYZIKOVICH, M.S.

Induction heating of complicated products made of heat-resistant steel. [Izd.] LONITOMASH no.33:173-186 '54. (MLRA 8:2)
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25(1) PHASE I BOOK EXPLOITATION SOV/1302

Obrabotka splavov davleniyem; sbornik statey (Pressure Treatment of Alloys; Collection of Articles) Moscow, Oborongiz, 1958. 141 p. 4,500 copies printed.

Eds.: (Title page): Korneyev, N.I., Doctor of Technical Sciences, Professor, and Skugarev, I.G., Candidate of Technical Sciences, Docent; Ed. (Inside Book): Samokhodskiy, A.I., Engineer: Ed.of Publishing House: Morozova, P.B.; Tech. Ed.: Rozhin, V.P.; Managing Ed.: Zaymovskaya, A.S., Engineer.

PURPOSE: This book is intended for engineers, technicans, and research workers in scientific research institutes. It may also be used by design engineers and other personnel interested in the shaping and working of various metals and alloys.

COVERAGE: This collection of articles deals with modern methods of forming nickel alloys, structural steels, heat resistant alloys, titanium alloys, and also aluminum and magnesium alloys. A description is given of the methods of measuring resistance of these metals to deformation. It is stated that during the last years great emphasis has been put in the USSR and abroad on production

Card 1/4

of precision forged parts which can be finished by polishing and lapping only. Such methods have led to substantial savings in metal and man hours in the production of turbine blades. The 20th Congress of the Communist Party indicated the necessity of using periodically rolled stock in forging for the sake of greater economy and efficiency. Large-sized aluminum alloy extruded structural members with complex cross sections are said to have wide application in airplanes, helicopters, and diesel locomotives. Research and experimental work in this field is reported to have resulted in improved production methods and higher mechanical properties of large-sized aluminum alloy structural parts. The results of these developments, together with some experimental work in sheet metal forming, are presented and graphed in this book. A part of the book deals with the study of plasticity and resistance to deformation of the new heat-resistant titanium, molybdenum, and aluminum alloys, and their suitability for forging and press forming. The authors mention the names of senior technicians P.I. Potanov, R.N. Yakovleva, and laboratory technicians V.B. Emelyanov, and A.V. Sokolov, who assisted in the experimental work.